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Activity 3: Install SSH server on CentOS or RHEL 8

1. **Objectives:**

1.1 Install Community Enterprise OS or Red Hat Linux OS

1.2 Configure remote SSH connection from remote computer to CentOS/RHEL-8

2. **Discussion:**

CentOS vs. Debian: Overview

CentOS and Debian are Linux distributions that spawn from opposite ends of the candle.

CentOS is a free downstream rebuild of the commercial Red Hat Enterprise Linux distribution where, in contrast, Debian is the free upstream distribution that is the base for other distributions, including the Ubuntu Linux distribution.

As with many Linux distributions, CentOS and Debian are generally more alike than different; it isn't until we dig a little deeper that we find where they branch.

CentOS vs. Debian: Architecture

The available supported architectures can be the determining factor as to whether a distro is a viable option or not. Debian and CentOS are both very popular for x86_64/AMD64, but what other archs are supported by each?

Both Debian and CentOS support AArch64/ARM64, armhf/armhfp , i386 , ppc64el/ppc64le. (Note: armhf/armhfp and i386 are supported in CentOS 7 only.)

CentOS 7 additionally supports POWER9 while Debian and CentOS 8 do not. CentOS 7 focuses on the x86_64/AMD64 architecture with the other archs released through the AltArch SIG (Alternate Architecture Special Interest Group) with CentOS 8 supporting x86_64/AMD64, AArch64 and ppc64le equally.

Debian supports MIPSel, MIPS64el and s390x while CentOS does not. Much like CentOS 8, Debian does not favor one arch over another —all supported architectures are supported equally.

CentOS vs. Debian: Package Management

Most Linux distributions have some form of package manager nowadays, with some more complex and feature-rich than others.

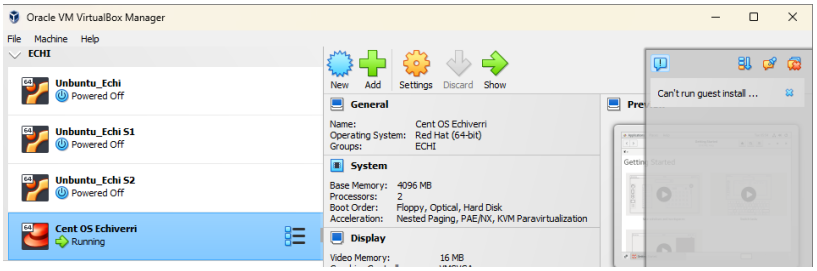
CentOS uses the RPM package format and YUM/DNF as the package manager.

Debian uses the DEB package format and dpkg/APT as the package manager.

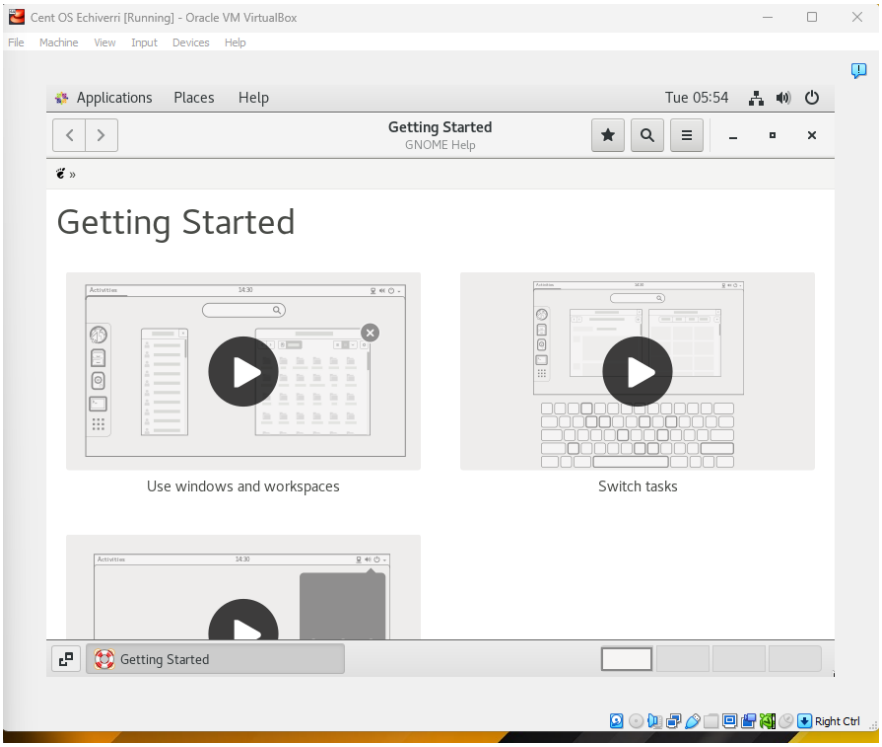
Both offer full-feature package management with network-based repository support, dependency checking and resolution, etc.. If you're familiar with one but not the other, you may have a little trouble switching over, but they're not overwhelmingly different. They both have similar features, just available through a different interface.

Task 1: Download the CentOS or RHEL-8 image (Create screenshots of the following)

1. Download the image of the CentOS here: http://mirror.rise.ph/centos/7.9.2009/isos/x86_64/
2. Create a VM machine with 2 Gb RAM and 20 Gb HD.
3. Install the downloaded image.

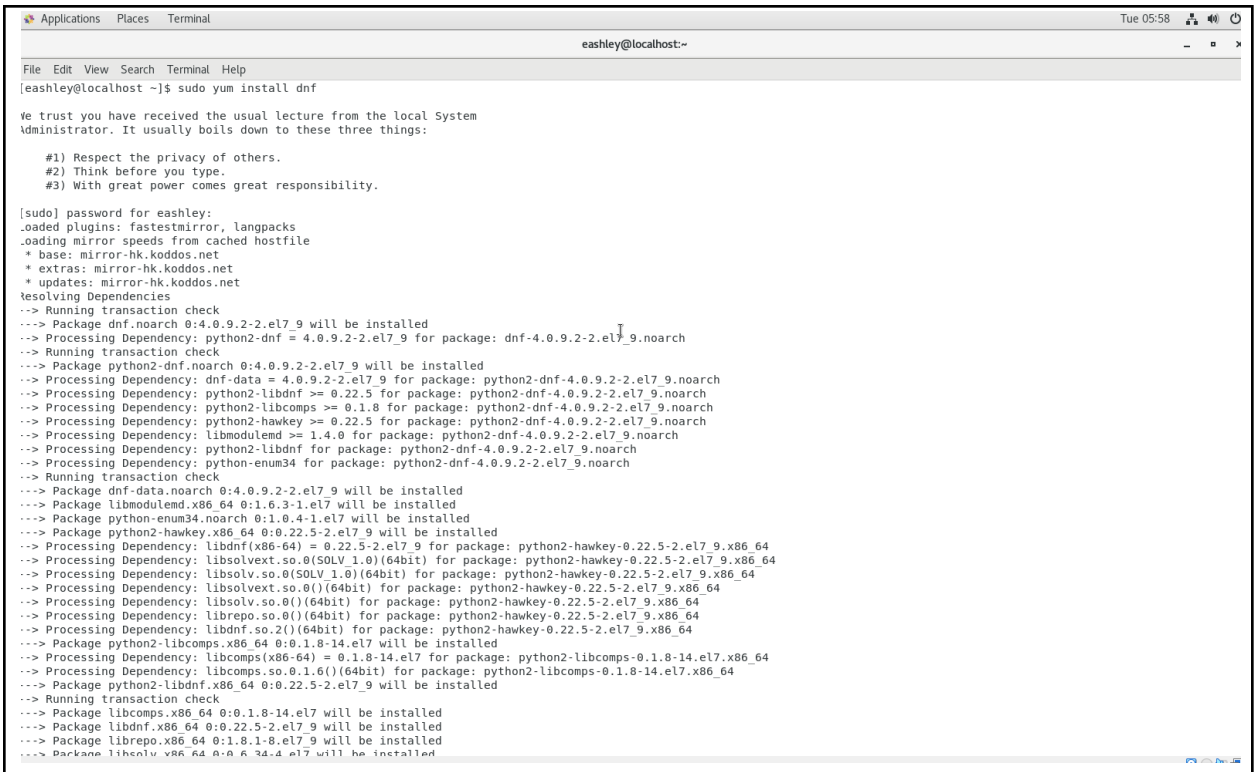


4. Show evidence that the OS was installed already.



Task 2: Install the SSH server package *openssh*

1. Install the ssh server package *openssh* by using the *dnf* command:
   $ dnf install openssh-server



2. Start the *sshd* daemon and set to start after reboot:
   $ systemctl start sshd
   $ systemctl enable sshd

```
[eashley@localhost ~]$ sudo systemctl start sshd
[eashley@localhost ~]$ sudo systemctl enable sshd
```

3. Confirm that the sshd daemon is up and running:
   $ systemctl status sshd

```
[eashley@localhost ~]$ sudo systemctl status sshd
● sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; vendor preset: enabled)
   Active: active (running) since Tue 2023-09-05 05:51:30 EDT; 8min ago
     Docs: man:sshd(8)
           man:sshd_config(5)
 Main PID: 1201 (sshd)
   CGroup: /system.slice/sshd.service
           └─1201 /usr/sbin/sshd -D

Sep 05 05:51:30 localhost.localdomain systemd[1]: Starting OpenSSH server daemon...
Sep 05 05:51:30 localhost.localdomain sshd[1201]: Server listening on 0.0.0.0 port 22.
Sep 05 05:51:30 localhost.localdomain sshd[1201]: Server listening on :: port 22.
Sep 05 05:51:30 localhost.localdomain systemd[1]: Started OpenSSH server daemon.
[eashley@localhost ~]$
```

4. Open the SSH port 22 to allow incoming traffic:
   $ firewall-cmd --zone=public --permanent --add-service=ssh
   $ firewall-cmd --reload

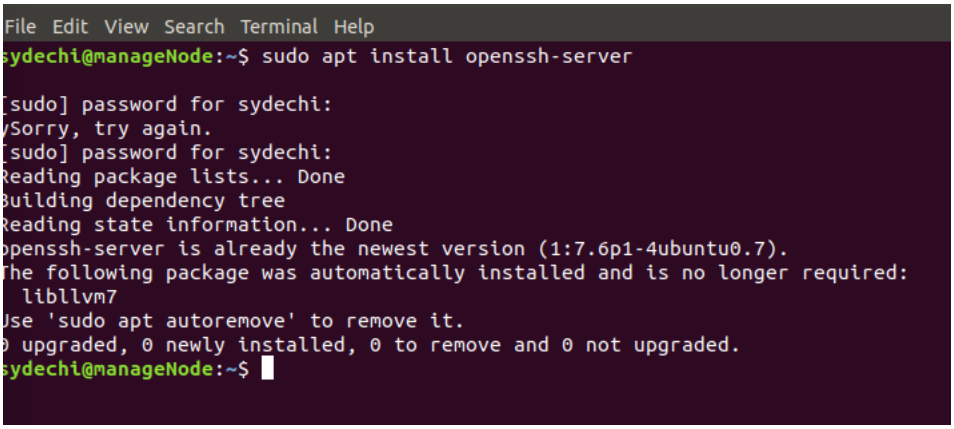
```
[eashley@localhost ~]$ sudo firewall-cmd --zone=public --permanent --add-service=ssh
Warning: ALREADY_ENABLED: ssh
success
[eashley@localhost ~]$ sudo firewall-cmd --reload
success
[eashley@localhost ~]$
```

5. Locate the ssh server man config file */etc/ssh/sshd_config* and perform custom configuration. Every time you make any change to the */etc/ssh/sshd-config* configuration file reload the *sshd* service to apply changes:
   $ systemctl reload sshd

```
[eashley@localhost ~]$ ls /etc/ssh
moduli  ssh_config  sshd_config  ssh_host_ecdsa_key  ssh_host_ecdsa_key.pub  ssh_host_ed25519_key
[eashley@localhost ~]$ sudo systemctl reload sshd
[eashley@localhost ~]$
```

Task 3: Copy the Public Key to CentOS

1. Make sure that *ssh* is installed on the local machine.



2. Using the command *ssh-copy-id*, connect your local machine to CentOS.

3. On CentOS, verify that you have the *authorized_keys*.

Task 4: Verify ssh remote connection

1. Using your local machine, connect to CentOS using ssh.
2. Show evidence that you are connected.

Reflections:

Answer the following:

1. What do you think we should look for in choosing the best distribution between Debian and Red Hat Linux distributions?
   Debian and RedHat are the greatest general-purpose distributions, offering flexibility, stability, and versatility, while Red Hat offers long-term maintenance, enterprise-grade features, and paid support services, making them appropriate for a variety of environments.
2. What are the main difference between Debian and Red Hat Linux distributions?

Packages, release cycles, and support strategies differ between Debian and Red Hat. For package management, Debian employs the Advanced Package Tool (APT), whereas Red Hat uses RPM for software distribution. Red Hat offers a predictable, long-term support cycle, whereas Debian has several release branches and extended

release cycles. Debian offers community support via forums and contributions, whereas Red Hat provides commercial support via subscriptions.

Conclusion:

The purpose of this activity is to configure and install a remote SSH connection to a CentOS server/computer. It distinguishes Debian for general use from Red Hat for commercial or enterprise use. The goal is to install CentOS 7 or Red Hat Linux OS and configure a remote connection from an Ubuntu distribution to CentOS utilizing the local machine of the Ubuntu Server.